REMARKS/ARGUMENTS

Claims 1-8 and 10-21 are pending in the present application, with claims 1 and 15 being the only independent claims. Reconsideration of the above-identified application, as herein amended and in view of the following remarks, is respectfully requested.

Amendments to the Claims

Independent claims 1 and 15 are amended to recite "generating, by the control node, a route plan for routing electricity between the matched buyer and seller and for simultaneously balancing loads and resources of the electric network based on the supply and demand conditions received through the feedback loop". Support for this limitation is found on page 8, lines 1-3.

Dependent claims 3 and 8 are amended to be consistent with the changes to independent claims 1 and 15.

New claims 19-21 are added to depend from independent claim 15. Support for the subject matter of the new claims is found at least in original claims 3, 4, 7, and 8.

Rejection of claims under 35 U.S.C. §102(e)

Claims 1-18 stand rejected under 35 U.S.C. §102(e) as anticipated by U.S. Patent No. 6,598,029 (Johnson).

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Independent claim 1 recites "dynamically matching by the control node the collected bids and asks to form matches", "receiving by the control node information related to current supply and demand conditions on an electric network through a feedback loop",

"generating, by the control node, a route plan for routing electricity between the matched buyer and seller and for simultaneously balancing loads and resources of the electric network based on the supply and demand conditions received through the feedback loop".

Independent claim 15 recites "a control node for receiving bids and asks from buyers and sellers, matching the received bids and asks to form matched bids and asks", and "said control node being configured for receiving information relating to current supply and demand conditions on the electric network through the feedback loop, generating a route plan for routing electricity between the matched buyer and seller and for simultaneously balancing loads and resources of the electric network based on the supply and demand conditions received through the feedback loop".

Johnson fails to disclose, teach or suggest a control node, which (1) dynamically matches the collected bids and asks, (2) receives information related to current supply and demand conditions on an electric network through a feedback loop, and (3) generates a route plan for routing electricity between the matched buyer and seller and for simultaneously balancing loads and resources of the electric network based on the supply and demand conditions received through the feedback loop, as expressly recited in each of independent claims 1 and 15.

1.   General Background on Feedback Control as used in Claim Language

Generally, an automatic or dynamic feedback control system employs the output of a system as an input to the system. According to the online Merriam Webster dictionary, "Feedback" is "the return to the input of a part of the output of a machine, system, or process (as for producing changes in an electronic circuit that improve performance or in an automatic control device that provide self-corrective action)." The online Wikipedia defines "feedback" as

"the signal that is looped back to control a system within itself. This loop is called the feedback loop. A control system usually has input and output to the system; when the output of the system is fed back into the system as part of its input, it is called the 'feedback'." It is respectfully submitted that the present invention, as recited in claims 1 and 15, defines a novel and nonobvious system/method that solves the problems of an increasingly fragmented electric power market through the application of feedback control theory. Johnson's auction/bidding system is not a "feedback" system as understood by persons skilled in the art of feedback control and as explained below.

2.   Detailed Discussion of the Cited Johnson Reference

Johnson discloses an auction service in which providers supply energy to end users in accordance with economic incentives resulting from a bidding process administered by a moderator (col. 6, lines 3-14 of Johnson). Each of the providers transmits to the moderator the rate it is willing to charge for supplying energy (electric power or gas) to be provided to the end users (col. 6, lines 24-28). Johnson further states that the provider may change its bids as often as it likes as market place demands for energy change or in response to competitors' bidding activities (col. 6, lines 40-42). The moderator sorts the bid information according to rules of the auction (col. 6, lines 43-49). The moderator then transmits selected portions of this information to a control computer associated with each end user (or group of end users) and participating providers (col. 6, lines 52-57). Each control computer gets the rate information and/or provider selection information from the moderator that pertains to the ends users with whom the control computer is associated (col. 6, lines 57-61). Each control computer selects those providers from whom the participating end users will be provided electric power or gas (col. 7, lines 6-10).

The moderator collects the end users actual usage to create usage reports to be transmitted to providers (col. 7, lines 24-27). The provider can adjust its bids to create more demand on a spot basis (col. 7, lines 34-40). Each provider manages power generation and/or power provisioning (or gas production and/or gas provisioning) in response to the usage reports (col. 7, lines 41-55). Moreover, Johnson specifically discloses at col. 16, lines 49-56, that the provider is responsible for scheduling the delivery of the electric power or natural gas to the end user such as, for example, by notifying the regional grid controller.

3.   Johnson Does Not Disclose an Automatic Control System that Generates Route Plans Using a Feedback Loop

Since Johnson discloses that the provider manages power generation and/or provisioning, and the separate control computer selects the providers who will supply the energy to the end users, Johnson fails to disclose "dynamically matching by the control node the collected bids and asks to form matches", "receiving by the control node information related to current supply and demand conditions on an electric network through a feedback loop", and "generating, by the control node, a route plan for routing electricity between the matched buyer and seller and for simultaneously balancing loads and resources of the electric network based on the supply and demand conditions received through the feedback loop", as expressly recited in independent claims 1 and 15.

In support of the rejection, Examiner alleges that Johnson discloses receiving by the control node information related to current supply and demand conditions on an electric network through a "feedback loop" as required by independent claims 1 and 15, citing col. 6, lines 25-40; col. 12, lines 24-28; and col. 16, line 65 to col. 17, line 5 and stating that the "Provider receives

information on supply and demand and feedback reports". Thus, the Examiner infers that the Provider is the claimed control node. Applicants note that the Provider of Johnson can not be considered to be the recited control node because the Provider of Johnson is a seller of electric power. As stated in the section of Johnson at col. 6, lines 25-40, which is referred to by the Examiner in the Office Action, a Provider may submit its bids to the Moderator. Claims 1 and 15 each require that the control node receives bids and asks from buyers and sellers. Thus, the Provider of Johnson is analogous to the claimed sellers.

Furthermore, even if the Moderator disclosed by Johnson is considered to be the claimed control node, the Moderator of Johnson fails to disclose, teach or suggest "generating, by the control node, a route plan for routing electricity between the matched buyer and seller and simultaneously balancing loads and resources of the electric network based on the supply and demand conditions received through the feedback loop", as now recited in the independent claims. Rather, Johnson discloses that it is the grid controller of a DISCO (i.e., local distribution companies), not the Moderator/Control Computer, which requires the usage information to manage imbalances on its local grid effectively. More specifically, Johnson discloses a two step process in which the Moderator/Control Computer first selects the Provider to supply end users and then the selected Provider determines a route with a local grid operator (col. 16, lines 49-57). However, Johnson fails to disclose that the Moderator/Control Computer of Johnson selects a Provider *based on the usage or supply and demand information.* Thus, Johnson fails to disclose the claimed "control node" that (1) generates a route plan that takes into account the supply and demand conditions received through the feedback loop and (2) simultaneously balances loads and resources of the electric network based on the supply and demand conditions, as recited in independent claims 1 and 15, without requiring the intervention of buyers and sellers.

Stated another way, the claimed control node operates a "feedback loop" system to generate the route plan. Johnson's auction system does not disclose this limitation because the moderator/control computer of Johnson merely acts as a conduit for reporting end-user usage information to the providers so that the providers may manage its power generation and/or power provisioning activities or submit new bids to the moderator (see col. 7, lines 24-55 of Johnson).

Furthermore, Johnson does not disclose or teach a control node that receives bids and asks from buyers and sellers as required by claims 1 and 15. In contrast, Johnson's Moderator receives "bids" only from the Providers, but not the customers. This highlights an important distinction between the trading system of the present invention and the auction system of Johnson.

An important advantage of the present invention over Johnson's system is that the overall supply and demand of electric power of the buyers and sellers are automatically and globally optimized. In contrast, each of the selected Providers using Johnson's bidding service is left with the problem of managing its own supply and demand through its local or regional grid controller. See col. 16, lines 49-56 of Johnson.

For all of the aforementioned reasons, Applicant respectfully submits that independent claims 1 and 15 are not anticipated by the cited Johnson reference under 35 U.S.C. §102.

Since Johnson discloses that the Provider itself generates the route plan, there is also no teaching or suggestion for a control node that matches the bids and generates the route plan, as recited in independent claims 1 and 15. Accordingly, independent claim 1 and 15 are also allowable over Johnson under 35 U.S.C. §103.

Dependent claims 2-8, 10-14, and 16-18 are allowable for the same reasons as are independent claims 1 and 15, as well as for the additional recitations contained therein.
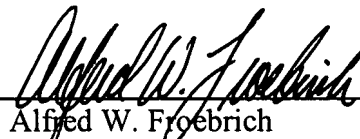
The application is deemed to be in condition for allowance and notice to that effect is solicited.

Should the Examiner have any comments, questions, suggestions, or objections, the Examiner is respectfully requested to telephone the undersigned in order to facilitate reaching a resolution of any outstanding issues.

It is believed that no fees or charges are required at this time in connection with the present application. However, if any fees or charges are required at this time, they may be charged to our Patent and Trademark Office Deposit Account No. 50-1817.

Respectfully submitted,
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Dated: August 6, 2007